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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,857	08/07/2000	David C. Ahlgren	FIS9-2000-0149US1	3316

30743 7590 07/14/2003

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RESTON, VA 20190

EXAMINER

KUNEMUND, ROBERT M

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 07/14/2003

18

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/633,857

Applicant(s)

AHLGREN ET AL.

Examiner

Robert M Kunemund

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 4, 6 to 8, 11, 13, 14 and 16 to 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa et al in view of Maley et al and Abelson et al.

The Nishizawa et al reference teaches a method and apparatus for the controlled growth of silicon. A substrate is placed in a chamber and heated to deposition temperatures. Source gases are flowed in the direction of the substrate and over the substrate to create a layer. There is a means to monitor the growth and feed the data to a controller, which changes flow rates, note entire reference. The sole difference between the instant claims and the prior art is the monitoring of the hydrogen partial pressures. However, the Maley et al and Abelson et al references teach monitoring

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hydrogen partial pressures during deposition and using the data to control of growth, note abstracts. It would have been obvious to one of ordinary skill in the art to modify the Nishizawa et al reference by the teachings of the Maley et al and Abelson et al references to monitor hydrogen partial pressures in order to enhance control over the growth of the layer even to the single layer level.

Claims 5, 9, 10, 15, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishizawa et al in view of Maley et al, Abelson et al. and Dubbelday et al.

The Nishizawa et al ,Maley et al., and Abelson et al. references are relied on for the same reasons as stated, supra, and differ from the instant claims in the growth of SiGe. The Dubbelday et al reference teaches growing SiGe layers, note col. 2 It would have been obvious to one of ordinary skill in the art to modify the Nishizawa et al reference by the teachings of the Dubbelday et al reference to deposit SiGe in order to increase the quality of the layer.

Response to Applicants' Arguments

Applicant's arguments filed May 7, 2003 have been fully considered but they are not persuasive.

Applicants' argument concerning the monitoring is noted. However, the Nishizawa et al reference teaches that the monitoring can be done in a real time and the results are then read into the control loop to allow for further control of the deposition. The reference clearly sets forth that the process shown for GaAs can be used for other

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materials including silicon. Thus, the reference is relevant art. The teaching cannot simply be ignored or minimized, as it does state that all the teachings about GaAs can be applied to silicon.

Applicants' argument concerning the Maley et al and Abelson et al references has been considered and not deemed persuasive. The references both teach that the evolution of hydrogen during silicon deposition and the hydrogen partial pressures are indicators of the deposition rates and thus can be used as a parameter to monitor the growth.

Applicants' argument concerning the combination of references is noted. However, the Nishizawa et al reference is pertinent art concerning silicon deposition and control loops therefore. Both the Maley et al and Adelson et al references teach one of ordinary skill in the art the importance of hydrogen partial pressure in silicon depositions and that the pressure is a parameter of growth. The combination teaches the process of monitoring the partial pressure of hydrogen to control growth.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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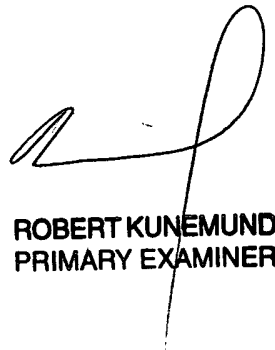
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M Kunemund whose telephone number is 703-308-1091. The examiner can normally be reached on 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ben Utech can be reached on 703-308-3636. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

RMK
July 8, 2003



ROBERT KUNEMUND
PRIMARY EXAMINER